

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

ANCHORING BISCUIT DEVICE

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(This is a continuation-in-part of United States pending Patent Application Serial No. 08/811,898, filed on March 5, 1997, entitled, "Anchoring Biscuit Device for Joining Two Adjacent Boards", by the same inventor herein.)

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ANCHORING BISCUIT DEVICE
(Attorney Docket No.HWE-105C)

REFERENCE TO RELATED CASE

This is a continuation-in-part of U.S.
a 5 pending patent application Serial No. 08/811,898, *now abandoned*
filed on March 5, 1997 entitled, "Anchoring
Biscuit Device for Joining Two Adjacent Boards",
by the same inventor herein.

BACKGROUND OF THE INVENTION

10 1. Field of the Invention

The present invention is directed to an
improved biscuit for joining adjacent boards.
More specifically, the invention is an anchoring
biscuit device, as well an anchoring half biscuit
15 device which has the ability for pre-setting
distances between adjacent boards and attaching
to at least one board by means in addition to the

biscuit itself. The anchoring biscuit device physically joins two adjacent boards in the same plane to a third, supporting board. The anchoring half-biscuit device joins two adjacent boards at right angles to one another.

2. Information Disclosure Statement

The following patents are representative of the state of the art for wood joining devices, equipment and methods:

U.S. Patent No. 1,184,080 to D'Arcy describes a structure of the class described, the combination of frame pieces disposed at an angle to each other and plate-like corner irons having angularly disposed flanges, said corner irons being arranged in opposed pairs on the sides of and secured to the ends of meeting frame pieces

with their flanges engaging the inner edges
thereof in overlapping telescoping relation to
each other, the inner flanges having vertical
nail slots therein and brads on their edges
5 driven into the frame pieces, the outer flanges
having nail perforations opposite the nail slots,
there being nails disposed through the said
perforations and slots and driven into the frame.

U.S Patent No. 2,332,081 to G.M. Hunt et al
10 is directed to a wooden panel. It is described as
a panel comprising wooden strips joined along
their edges with glue, each strip having at least
one groove in its edge matching groove in the
edge of the adjoining strip, an asbestos
15 millboard spline fitted in the matching grooves
and bridging the joint between the strips,

crossbands covering the strips on both sides of the panel, and veneers covering the crossbands.

U.S. Patent No. 2,362,252 to Ellinwood

describes a wall structure of the character

5 described comprising a pair of adjacent wallboard

panels having meeting edges, each of said panels

being formed with a groove opening into its

meeting edge, the groove in each panel providing

an outer lip and an inner lip, said outer lips

10 being in abutting relation, a joining strip

permanently secured to the under surface of said

outer lips, said inner lips being spaced, a T-

shaped connecting member movably positioned in

said groove and having a base in spaced relation

15 to said inner lips, and means for anchoring said

connecting member to a structural element.

U.S. Patent No. 2,398,603 to Soderberg

describes a joining staple, comprising a metal
body having at least two portions extending at
right angles to each other and at least two teeth
5 carried upon each of said portions, each of said
teeth consisting of a flat substantially
rectangular body having a cutting edge extending
substantially parallel to its body portion, the
cutting edges of all of said teeth being located
10 in one plane, each of said portions having
another cutting edge extending between the teeth
of that portion, the second mentioned cutting
edges being also located in one plane.

U.S. Patent No. 2,406,387 to Lank describes

15 the method of constructing a plurality of wooden
posts each of which has a connector element

incorporated therein adjacent each end thereof
which method comprises forming a plurality of
longitudinally extending grooves in one side of
each of a pair of wooden blanks from which the
5 posts are to be formed, forming a transverse
groove adjacent each end of said side of each of
said blanks with the transverse grooves
intersecting the longitudinal grooves, providing
a pair of connector retaining members with a
10 plurality of seats for receiving connector
elements, the number and spacing of said seats in
each of said connector retaining members
conforming to the number and spacing of the
longitudinal grooves in each of said blanks,
15 placing connector elements in each of said seats,
positioning said blanks with their grooved sides

together and with said connector retaining
members in said transverse grooves, bonding said
blanks together, and severing the thus bonded
assembly along longitudinal lines intermediate
5 said longitudinal grooves.

U.S Patent No. 4,641,988 to Ganner is
directed to a fitting for releasably joining two
structural components. It is illustrated for
releasably joining two structural components
10 particularly plate-shaped structural components
which extend at a right angle relative to one
another, a fitting has a preferably cylindrical
locking element which can be inserted either
directly in a bore in the first structural
15 component or it can be inserted indirectly in a
housing, and a holding piece with a holding

projection anchored in the second structural component. In the assembled position, the holding projection & abuts against one or two gripping surfaces of the locking element which gripping surfaces are of, for example, eccentric shape, and the holding projection is pulled toward the locking element when the locking element is turned. The holding piece is constructed plate-shaped and is insertable in a slot in the second structural component.

U.S. Patent No. 4,682,458 to Sparrow describes a floor composed of parallel spaced beams having flanges and blocks of polystyrene foam which are laid on the flanges to bridge the gaps between the beams. Boards are laid on the polystyrene blocks, and are supported by the

blocks, which form load-bearing members of the floor. The blocks may have flanged portions extending over the beams, so as to provide heat insulation.

5 U.S Patent No. 5,004,027 to Legler et al

illustrates a biscuit joiner. It is described as

a biscuit joiner for cutting semi-elliptical

slots in opposing edges of workpieces which are

to be joined along those edges includes a housing

10 adapted to be mounted upon the quill of a multi-

purpose woodworking tool, which housing encloses

a rotary saw blade adapted to be attached to a

spindle projecting from the quill on which the

housing is mounted. A spring loaded guide

15 projects from the front face of the housing and

has a slot therethrough, so that when the front

face of the guide is engaged by an edge of a
workpiece to be slotted the guide can be pushed
inwardly against spring pressure, allowing the
rotary saw blade to be exposed and form a slot in
the edge of the workpiece. Adjustable stops are
provided on the guide so that a desired depth of
cut will automatically be made after adjustment.
An alternative construction of this biscuit
joiner is especially adapted for use in
conjunction with a conventional drill press, with
the arbor which carries the saw blade being
clamped in the chuck on the drive spindle of the
drill motor.

U.S. Patent No. 5,182,891 to Slocum

describes a flooring construction which is
provided having a unitary construction with a top

layer providing a finished flooring surface and
an insulation layer adjacent the top layer. The
flooring panel includes an upper portion and a
lower portion. The upper portion has a larger
dimension than the lower portion and extends
outwardly beyond the lower portion. A recessed
portion between the upper portion and the lower
portion defines a channel. A plurality of
interlock support elements having a vertical web
and an upper horizontal flange are arranged so
that the horizontal flange extends into the
channel. The vertical web extends below the
lower portion to raise the flooring.

U.S. Patent No. 5,251,996 to Hiller et al
describes a connecting element for connecting two
parts generally in a connection plane has a first

portion for connecting the element relative to a
first of the parts and second portion for
connecting the element relative to the second
part. The second portion includes actuation
5 members which on relative movement of the parts
substantially along the connection plane urge the
parts forcefully towards each other.

U.S Patent No. 5,377,732 to Fujii et al
illustrates a wood joining structure and method
thereof. It is described as a technique is
10 provided for joining wood members. A plurality of
slits are formed on the end portions of wood
pieces desired to be joined, and the end portions
are abutted with corresponding slits in alignment
15 to form a common surface. Each of the abutted
wood end portions is fixed by temporary fixing

means to a desired joining state. Thereafter, an adhesive agent is applied into the interior surfaces of the slits. Connecting plates, e.g., made of a reinforced plastic material coated with the adhesive agent, are inserted into the aligned slits. The adhesive agent is then hardened.

U.S Patent No. 5,458,433 to Stastny

explicates a biscuit and joint made using same.

It is described as a biscuit having octagonal outer periphery is used to form a joint between first and second workpieces. The biscuit fits within arcuate slots formed in the workpieces, with glue placed in the slots and/or on the biscuit before the joint is put together. The biscuit is made of an anhydrous compressed wood.

U.S. Patent No. 5,480,117 to Fleming, III

describes a bracket for mounting a rotary lock member in the frame of a panel which is provided.

The bracket is a preferably U-shaped body having a base and two legs extending therefrom. The

5 inner dimension of the bracket is chosen to allow

insertion of a rotary lock member therein. Panel

engaging steps and protrusions are located on the

outside surface of each leg for engaging the

frame material. The legs of the bracket are

10 biased inwardly towards one another, such that

when a locking member is inserted therein, the

legs are pressed outwardly, driving the

protrusions into the frame material. A number of

bores are located in the bracket to allow

15 supplemental locking members to lock the bracket

to the frame.

U.S Patent No. 5,529,428 to Bischof is
directed to a metallic structural element for
connecting workpieces consisting of wood,
woodworking material or plastic. It is described
as a metallic structural element for connecting
workpieces consisting of wood, woodworking
material or plastic, consisting of a lamellar
part, which provides the non-positive connection
with the first workpiece provided with a groove
and a transverse hole, and a bolt-like part
which, through screwing or pinning, realizes the
non-positive connection with the second workpiece
provided with a longitudinal hole. The lamellar
part has, in the center, a hole which is at right
angles to the plane of the lamella and is
intended for fixing in the groove of the

workpiece. Variants having a wing-like long or rectangular short lamellar part and a bolt-like part in the form of a conical wood screw, cylindrical screw, screw having a metal thread, threaded sleeve or pin. Accessories: screwing tool and drilling template.

U.S. Patent No. 5,660,016 to Erwin et al describes an extruded plastic decking plank for mounting to an underlying support structure, the plank having a rigid foam core, a resilient outer plastic shell, and a clamping portion for securing the plank to the support structure. The top surface of the plank can be provided with a non-slip surface. The invention also includes an attachment system for securing such decking planks to a support structure by engaging the

clamping portions of the decking planks onto
clamps or hold down blocks which are secured onto
the support structure, and which permit relative
motion between the planks and the structure in
the planks' lengthwise direction to prevent
stress and buckling caused by uneven expansion.

Notwithstanding the prior art, the present
invention is neither taught nor rendered obvious
thereby.

SUMMARY OF THE INVENTION

The present invention is an anchoring
biscuit device for joining three boards. It
includes, (a) a first substantially flat
horizontal top element having a generally
biscuit-shaped top view configuration, (b) at
least one substantially vertical support member

attached to the underside of the top element and
extending downwardly therefrom for a

predetermined length for joinder of two adjacent

boards which have been pre-cut with biscuit

5 receiving slots, and, (c) an attachment orifice

located at least on the top element for

attachment of the anchoring biscuit device to a

support board for anchoring and support of the

two adjacent boards. In one preferred

10 embodiment, a top bevel is included at the

orifice to permit angled screwing at positions

other than vertical positions. In other

embodiments, the screw orifice will have an oval

or elongated shape to likewise enable screwing at

15 angles other than vertical. In yet another

preferred embodiment, the orifice will both be

beveled and elongated.

BRIEF DESCRIPTION OF THE DRAWINGS

The present invention should be more fully understood when the specification herein is taken in conjunction with the drawings appended hereto wherein:

Figure 1 illustrates a top view of one preferred embodiment of the present invention anchoring biscuit device, Figure 2 illustrates a front view, and Figure 3 illustrates a side view thereof;

Figure 4 shows a side view of the present invention device shown in Figures 1 through 3 but being attached to a joist and a first deck board and about to be attached to a second deck board where both deck boards are supported by that

joist;

Figure 5 shows a front view of an
alternative embodiment present invention
anchoring biscuit device;

5 Figures 6 and 7 show top views of
alternative present invention anchoring biscuit
devices;

10 Figure 8 shows a partial side cut view of
the device shown in Figure 7 to illustrate the
beveled cut of the screw hole;

15 Figure 9 shows a side view of the present
invention device shown in Figure 7, but being
attached to a joist and a first deck board and
about to be attached to a second deck board where
both deck boards are supported by that joist;
and,

Figure 10 and Figure 11 show front views of alternative embodiment present invention anchoring biscuit devices having single vertical extended members.

5 DETAILED DESCRIPTION OF THE PRESENT INVENTION

In Figure 1, there is shown a top view of present invention anchor biscuit device 1.

Device 1 includes a top element 3 having a flat top surface as shown, and a top view shape of a biscuit. Thus, it includes walls 5 and 7 in the shape of arcs having predetermined radius and predetermined arc lengths. In this case, they are perfectly symmetrical and have flat endwalls 9 and 11. Without exceeding the scope of the present invention, these biscuit shapes could be slightly modified, such as having slightly non-

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circular arcs or linear segments at angles approximating arcs.

Top element 3 also includes an attachment means, in this case, screw hole 13 located on center. This enables the user to nail or screw device 1 into a joist, as more fully described in conjunction with Figure 4 below.

Figures 2 and 3 show front and end (right side) views, respectively of device 1 shown in Figure 1. Thus, device 1 includes vertical support members 15 and 17 with a space therebetween to permit a screw or nail to pass through screw hole 13 into a joist or support board. Vertical support members 15 and 17 have a predetermined height so as to rest on a joist in such a way as to establish biscuit top element 3

at a predetermined height from the joist for attachment of two adjacent boards thereto which have pre-cut biscuit slots corresponding thereto.

Figure 4 shows present invention device 1 with identical parts identically numbered.

Top element rear biscuit wall 5 is inserted into pre-cut biscuit slot 27 of horizontal beam 21, as shown. Screw 31 is inserted into screw hole 13 and into joist beam 25. This anchors device 1 to joist beam 25 and establishes the elevation of top element 3 so as to match with biscuit slot 27. Beam 23 will be placed atop joist 25 and adjacent to beam 21 by being slid into position with wall 7 fitting into slot 29 and the bottom of beam 23 resting on joist 25. By this method, device 1 attaches all three boards to one another

as the biscuit aspects are typically tight-fitting. Thus, for example, decking boards may be attached without the need for nails or screws entering the beams from the top.

5 Figure 5 shows an alternative embodiment

present invention device 51 which has multiple

screw holes 43, 53 and 55 located in a straight

line on center of top element 47. It includes

ends 41 and 49, and it has a plurality of

10 vertical support members such as vertical support

members 45 and 57, with spaces therebetween for

screw or nail insertions. Device 51 is used in

the same manner as device 1 described above with

respect to Figure 4.

15 Figures 6 and 7 show top views of

alternative embodiment present invention

anchoring biscuit devices 61 and 91 respectively.

In Figure 6, there is shown a top view of present

invention anchor biscuit device 61. Device 61

includes a top element 63 having a flat top

5 surface as shown, and a top view shape of a

biscuit. Thus, it includes walls 65 and 67 in

the shape of arcs having predetermined radius and

predetermined arc lengths. In this case, they

are perfectly symmetrical and have flat endwalls

10 69 and 71. Top element 63 also includes an

attachment means, in this case, screw hole 73

located on center. Screw hole 73 has a bevel cut

75 at its top. This enables the user to nail or

screw device 61 into a joist with the screw or

15 nail being installed vertically, or, more

preferably, at an angle.

In Figure 7, there is shown a top view of present invention anchor biscuit device 91.

Device 91 includes a top element 93 having a flat top surface as shown, and a top view shape of a

5 biscuit. Thus, it includes walls 95 and 97 in the shape of arcs having predetermined radius and predetermined arc lengths. In this case, they

are perfectly symmetrical and have flat endwalls

99 and 101. Top element 93 also includes an

10 attachment means, screw hole 103 located on

center. Note that screw hole 103 is elongated

and has a beveled top 105. This enables the user

to nail or screw device 91 into a joist, either

vertically or at an angle, as more fully

15 described in conjunction with Figure 8 below.

Figure 8 shows a partial side cut view of

a
device 91 of Figure 7 to illustrate the beveled
cut 105 of screw hole ¹⁰³~~203~~.
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Figure 9 shows present invention device 91
of Figure 7 and the boards shown in Figure 4,
5 with identical parts identically numbered.

Top element 93 at rear biscuit wall 95 is
inserted into pre-cut biscuit slot 27 of
horizontal beam 21, as shown. Screw 131 is
inserted at about a 30° angle from vertical into
10 beveled screw hole 103 and into horizontal beam
21 and joist beam 25. This anchors device 91 and
horizontal beam 21 to joist beam 25 and support
member 117 (and 115 not shown) maintains top
element 93 in a horizontal position during
15 screwing and to maintain its position with
biscuit slot 27. Beam 23 will be placed atop

joist 25 and adjacent to beam 21 by being slid into position with wall 97 fitting into slot 29 and the bottom of beam 23 resting on joist 25.

By this method, device 91 attaches all three boards to one another as the biscuit aspects are typically tight-fitting. The steps are repeated along each joint beam in a deck and they are repeated for each next horizontal beam to assemble, e.g., a deck, platform, porch, etc.

Figure 10 shows a front view of device 141. Thus, device 141 includes a single vertical support member 145 with a space cut out 143 to permit a screw or nail to pass through beveled screw hole 153 and through support member 145 into a joist or support board. Vertical support member 145 has a predetermined height so as to

rest on the side of a beam into which device 141
may be inserted and, optionally, so as to rest on
a joist in such a way as to establish biscuit top
element 147 at a predetermined height from the
joist for attachment of two adjacent boards
thereto which have pre-cut biscuit slots
corresponding thereto.

Figure 11 shows a front view present
invention of device 161, which includes a single
off-center vertical support member 165 with a
space underneath beveled screw hole 163 to permit
a screw or nail to pass through screw hole 163
into a beam and/or joist or support board. Top
167 has opposite ends 169 and 171 as shown, with
support member 165 biased to the left toward end
169, as shown. Top 163 may have a topography

which would be the same as that shown in Figures
1, 6 or 7 above.

Obviously, numerous modifications and
variations of the present invention are possible
5 in light of the above teachings. It is therefore
understood that within the scope of the appended
claims, the invention may be practiced otherwise
than as specifically described herein.